New Jersey Department of Transportation
CORRECTIVE ACTION NOTICE

QUALITY MANAGEMENT SERVICES

Director: Lynn Rich **Telephone: (609) 530-5577**

CAN No. CAN063

Approved: Lynn Rich
Date: 8 / 4 /06

Subject: Image Vehicle Detection

Bureau(s) Affected: All Units involved with the design of Traffic Signals with Vehicle detection
All Consultants and Contractors (DOT or third party)

Description of Issue(s): The Department is moving in the direction to utilize Image Vehicle Detection as a direct replacement for Inductive Loops. This change will be incorporated in the updated Roadway Design Manual (Section 12).

Corrective Action Plan: Until revisions to the Roadway Design Manual (Section 12) and an Electrical Material Specification (EB) for Image Vehicle Detection are issued, the designers shall include the following changes to the Traffic Signal Design:

1. On all new traffic signal designs, Image Vehicle Detection will be used. The area of detection will be the same as when designing inductive loops. The Plan will be labeled “AREA OF DETECTION”.

2. On all revisions to traffic signal designs that involve vehicle detection changes, Image Vehicle Detection will be used. The area of detection will be the same as when designing inductive loops. The Plan will be labeled “AREA OF DETECTION”.

3. The Image Detection unit (camera) must be placed aiming the camera as straight as possible to the area of detection, trying not to view the area of detection on an angle.

4. The Image Vehicle Detection equipment shall meet the following:

The Image Video Detection system shall process video images for vehicle presence, motion, count, speed, and other typical traffic parameters. As a minimum the detection system shall consist of all mounting hardware, color cameras, video cable, an Automatic Control Unit (ACU) a pointing device and any equipment needed to provide accurate detection at the proposed location. The processor shall provide simulated contact closures that emulate a standard loop detector amplifier to a traffic signal controller and comply with the National Electrical Manufacturers Association (NEMA) type C or D detector rack outputs. The system shall operate without the need for any computer attached to it.

The detection system shall be fully operational and provide accurate, real-time detector measures. The overall performance of the detection system shall be comparable to that of inductive wire loop detectors. The detection system shall be able to detect vehicle presence with 98% accuracy under normal day and night conditions, and 96% accuracy under inclement weather (fog, rain, and snow) conditions.

The ACU shall retain detector data in non-volatile memory, which shall be available for data transfer to a computer. The Supplier of the Video Detection system shall provide documentation detailing the protocol utilized to access this information. The protocol shall not be proprietary and can be utilized by any NJDOT system integrator to interface to the equipment.

The system shall meet the environmental requirements defined by the NEMA TS1 and TS2 specifications. Operating temperatures shall be from -30 °C to +74 °C at 0% to 95% relative humidity, non-condensing. The ACU shall be powered by 95 - 135 volts AC, 60 hertz.

The imaging detection software shall support the placement of detection at any location within the field of view of the camera. The software shall support the editing, revising, deleting, and adding new detector areas, as well as saving the detector configuration file.

One set of complete schematics and maintenance manual of the equipment shall be supplied with each assembly furnished.

The complete control and auxiliary equipment shall carry a two-year guarantee from the date of acceptance against any imperfections in workmanship or materials.

The responsibility of each unit to ensure that this directive is carried out shall be as follows:

- **Bureau of Traffic, Access & Landscape**
  Ensure that designer incorporates the new design changes.

Implementation: Routine